

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Borthwick *et al.*

Confirmation No.: 9778

Serial No.: 10/561,545

Group Art Unit: 1626

Filing Date: December 19, 2005

Examiner: N. Grazier

Title: 1-PHENYL-2-OXO-3-SULFONYLAMINO-PYRROLIDINE DERIVATIVES  
AND RELATED COMPOUNDS AS FACTOR XA INHIBITORS FOR THE  
TREATMENT OF ACUTE VASCULAR DISEASES

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Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO RESTRICTION REQUIREMENT**

Sir:

This paper is being filed in response to the Restriction Requirement mailed April 13, 2007.

The Examiner states that the instant application contains multiple groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1, and requires Applicants to elect a single invention. Furthermore, the Examiner requires Applicants to elect a single species for examination purposes only.

The Examiner lists the groups of inventions as **Group I:** Claims 1-6 and 8, drawn to compounds of formula (I); **Group II:** methods of using compounds of formula (I); and **Group III:** process for making compounds of formula (I). The Examiner also states that the application contains Markush practice, and pursuant to MPEP §1850(B) the invention does not meet the unity of invention criteria because "(1) the core structure is not the unifying criteria and (2) the variables do not belong to a 'recognized class of chemical compounds in the art to which the invention pertains.'" Furthermore, the Examiner states that the special technical feature is the core which is drawn to a 2-oxo-3-sulfonylamino-pyrrolidine, and since such core is not novel, the invention lacks unity under PCT Rules 13.1 and 13.2. Applicants respectfully submit that the Examiner's requirement for restriction is somewhat

confusing. However, in an attempt to further prosecution of the instant application, Applicants address the Examiner's request with the response that follows.

It appears that the Examiner is requiring restriction among Groups I-III for lack of a unifying special technical feature. Applicants respectfully disagree. Applicants submit that the compounds of formula (I) are the unifying special technical feature amongst Groups I-III. 37 CFR §1.475(b)(3) states that different categories of invention will be considered to have unity of invention if the claims are drawn to the combination of a product, a process for the manufacture of said product, and a use of the said product. The compounds of formula (I) (Group I) are the product, the method of using the compounds of formula (I) (Group II) is a method of using said product, and a process for preparing the compounds of formula (I) (Group III) is a process for preparing said product. The instant inventions of Groups I-III have a unifying technical feature (the compounds of formula (I)), and 37 CFR §1.475(b)(3) specifically states that a combination of inventions such as a product, a process for preparing said product, and a use of the said product, is considered to have unity of invention. Thus, restriction among Groups I-III is improper, and Applicants respectfully request reconsideration and withdrawal of the restriction requirement.

The Examiner states that the application contains Markush practice, and pursuant to MPEP §1850(B) the invention does not meet the unity of invention criteria. Perhaps the Examiner meant to say that the compounds of formula (I) lack unity, thus they cannot provide the special technical feature required for unity of invention amongst Groups I-III. If so, Applicants respectfully disagree. Applicants agree that the application contains Markush practice. However, Applicants disagree with the Examiner's interpretation and application of MPEP §1850(B) and of PCT Rules 13.1 and 13.2. As stated in MPEP §1850(III)(B) "Markush Practice," in pertinent part, Rule 13.2 shall be considered to be met when the [chemical] alternatives are of a similar nature. [C]hemical compounds shall be regarded as being of a similar nature where the following criteria are fulfilled:

- (A) All alternatives have a common property or activity; and
- (B)(1) A common structure is present, i.e., a significant structural element is shared by all of the alternatives.

It appears the Examiner agrees that the compounds of the present invention all have a common property. Therefore, it appears that the issue is whether or not the compounds share a significant structural element. MPEP §1850(III)(B) requires in Markush practice, either (B)(1) a common structure is present, i.e. a significant structural element is shared by all of the alternatives, or (B)(2) in cases where the common structure cannot be the unifying criteria, all alternatives belong to a recognized class of chemical compounds in the art to which the invention pertains. Applicants submit, and the Examiner appears to agree, that the alternatives of the instant invention share a common structural element. Therefore, MPEP §1850(III)(B)(1) applies to the instant application and (III)(B)(2) is not relevant.

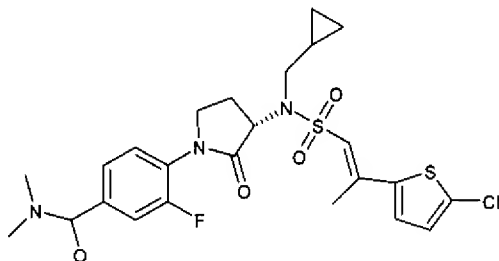
MPEP §1850(III)(B)(1) requires that all alternatives share a common structure. Such common structure is a "significant structural element that is shared by all of the alternatives" and refers to cases when compounds share a common chemical structure which occupies a large portion of their structures, or in case the compounds have in common only a small portion of their structures, the commonly shared structure constitutes a structurally distinctive portion in view of existing prior art, and the common structure is essential to the common property or activity. Applicants submit that compounds of the present invention possess a common chemical structure that occupies a large portion of their structures, as shown by formula (I). It appears that the Examiner agrees, since the Examiner states that the 2-oxo-3-sulfonylamino-pyrrolidine moiety is the technical feature. However, the Examiner also states that since the technical feature (i.e. the 2-oxo-3-sulfonylamino-pyrrolidine moiety) fails to define a contribution over the prior art, unity of invention is lacking. Applicants respectfully submit that the Examiner's application of PCT Rule 13.2 in this way is simply incorrect. MPEP §1850(III)(B) and the Applicants refer the Examiner to Chapter 10 of the International Search and Preliminary Examination Guidelines for examples of applying PCT Rules 13.1 and 13.2 to Markush practice, wherein the alternatives share a common structure. Applicants specifically refer to sections 10.38-10.40 and Examples 18-20 therein. As shown in Examples 18-20 of the Guidelines, novelty of the common structure itself is not required. Rather, all of the alternatives of the instant invention must share a significant structural element and possess the same utility. In the instant invention, the 2-oxo-3-sulfonylamino-

pyrrolidine moiety provides a common structure shared by all of the alternatives, and all of the alternatives have a common utility of inhibiting Factor Xa. Therefore, unity of invention exists in the instant application, and Applicants respectfully request reconsideration and withdrawal of the restriction requirement.

In order to be fully responsive, Applicants provisionally elect, with traverse, the following group:

**GROUP I:** Claims 1-6 and 8, drawn to compounds of formula (I).

Additionally, Applicants provisionally elect, for purposes of examination, Example 1 on page 33, also known as 4-((3S)-3-(((1E)-2-(5-Chloro-2-thienyl)-1-propen-1-yl)sulfonyl)(cyclopropylmethyl)amino]-2-oxo-1-pyrrolidiny]-3-fluoro-N,N-dimethylbenzamide, and having the structure:



The Examiner also encourages Applicants to particularly describe the elected species by specifically pointing out the definitions of each variable. Applicants respectfully submit that it is unclear what additional information, beyond the election of a single species, the Examiner is requesting. Applicants believe that the above provisional election of species for purposes of examination provides adequate information to the Examiner to begin examination of the instant application. However, should the Examiner feel she needs additional information, she is encouraged to telephone the undersigned at (919) 483-6334.

Applicants believe that no fees are due in connection with the filing of this paper other than those specifically authorized herewith.

Should any other fees be deemed necessary to effect the timely filing of this paper, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 07-1392.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'JL Fox', written over a horizontal line.

Jennifer L. Fox  
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Date: 11 May 07

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